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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,090	10/09/2003	Katsuji Ikeda	243760US2	8108
22850	7590	06/07/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			THOMAS, ERIC W	
			ART UNIT	PAPER NUMBER
			2831	

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n N .

10/681,090

Applicant(s)

IKEDA ET AL.

Examiner

Eric W Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 14-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7,9,11 and 13 is/are rejected.
- 7) ☒ Claim(s) 3,6,8,10 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/04, 1/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of invention I in the paper filed 5/12/04 is acknowledged. The traversal is on the ground(s) that a search and examination of the entire application would not place a serious burden on the examiner. This is not found persuasive because as seen by the separate classifications, a serious burden would be placed on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Claims 14-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the paper filed 5/12/04.

### ***Drawings***

Figures 7-9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The

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abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Applicant uses "said" in the abstract.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if

the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Applicant does not use section titles in the specification.

The disclosure is objected to because of the following informalities:

Applicant mentions the priority information at the end of the specification. It is suggested to applicant to place said information at the beginning of the specification.

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

Claim 6 is objected to because of the following informalities:

Claim 6, lines 2-3, the limitation, "an adhesive layer" is confusing. Is this a new adhesive layer or the one already claimed? Appropriate correction is required.

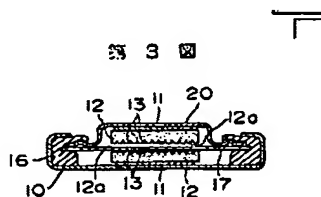
### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2, 4-5, 7, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichisugi et al. (JP 1-152715) in view of Evans (US 5,786,980) and Ikeda et al. (EP 1,096,521).



Ichisugi et al. disclose in fig. 3, an electric double layer capacitor having an electrolyte, a positive electrode (12) and a negative electrode (12) each being an electrode containing an "other carbon", to form an electric double layer at the interface with the electrolyte, and a separator (17) interposed between the positive electrode and the negative electrode, wherein at least one electrode of the positive electrode and the negative electrode has protruded portions formed continuously in the height direction against the bottom of the electric double layer capacitor, and a space due to the height

of the protruded portions is formed between said at least one electrode and the separator.

Ichisugi et al. disclose the claimed invention except for the electric double layer capacitor is formed within a casing, the electrode containing a carbon black, and the protruded portions in the height direction against the bottom face of the casing.

Evans teaches that it is common in the electric double layer capacitor art to form multiple electric double layer capacitors in a casing. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the capacitor of Ichisugi et al. in the casing of Evans, since such a modification would provide a casing for multiple like capacitors wherein the casing is inexpensive and lightweight.

Ikeda et al. teach that it is common in the electric double layer capacitor art to form a polarizable electrode sheet from a mixture of high purity activated carbon powder, carbon black, and PTFE.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the polarizable electrodes of Ichisugi et al. with the electrode sheet as taught by Ikeda et al, since such a modification would produce an electrode having high capacitance, and increased surface area.

\*It should be noted that in modified capacitor of Ichisugi et al. the protrusions would be formed continuously in the height direction against the bottom face of the casing.

Regarding claim 2, Ichisugi et al. disclose on both electrodes of the positive electrode and the negative electrode, the protruded portions are formed continuously in the height direction against the bottom face of the casing.

Regarding claim 4, Ichisugi et al. disclose the protruding portions are ones having said at least one electrode deformed on one side, and they are formed in a plurality at every predetermined distance in a direction perpendicular to the height direction.

Regarding claim 5, Ichisugi et al. disclose the electrode is one comprising a metal current collector (10) and an electrode sheet (12) containing a carbonaceous material as the main component, bonded with an adhesive layer (11). Ikeda et al. teach that the electrode sheet is 140  $\mu\text{m}$ .

Regarding claim 7, Ikeda et al. teach the electrode sheet contains 10 % carbon black.

Regarding claim 11, Ichisugi et al. disclose the claimed invention except for the electrolyte is a non-electrolyte is a non-aqueous electrolyte containing a quaternary onium salt as a solute.

Ikeda et al. teach the use of an electrolyte comprising a quaternary onium salt as a solute (see paragraph 42).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the electrolyte comprising a quaternary onium salt as a solute, since it is a known electrolyte having a high decomposition voltage.



Claims 9 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Ichisugi et al. (JP 1-152715), Evans (US 5,786,980), and Ikeda et al. (EP 1,096,521) as applied to claim 1 above, and further in view of Dispennette et al. (US 6,430,031).

Ichisugi et al. disclose the claimed invention except for the separator has a thickness of from 10 to 60  $\mu\text{m}$ , a porosity of from 40 to 80% and the maximum pore size of at most 1  $\mu\text{m}$  as measured by the test method prescribed JIS K3832.

Dispennette et al. teach the use of a separator for an electric double layer capacitor wherein the separator has a thickness of about 25.4  $\mu\text{m}$  (col. 13 lines 58-62), a porosity of 60-80 (col. 13 lines 58-62), and a maximum pore size of 0.1  $\mu\text{m}$  (col. 11 lines 55-57).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the separator of Dispennette et al. in the capacitor of Ichisugi et al., since such a modification would provide a known separator with a controlled resistance.

Regarding claim 13, Ichisugi et al. disclose the claimed invention except for the electrolyte is a non-electrolyte is a non-aqueous electrolyte containing a quaternary onium salt as a solute.

Ikeda et al. teach the use of an electrolyte comprising a quaternary onium salt as a solute (see paragraph 42).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the electrolyte comprising a quaternary onium salt as a solute, since it is a known electrolyte having a high decomposition voltage.

***Allowable Subject Matter***

Claims 3, 6, 8, 10, and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach or fairly suggest (taken in combination with the other claimed features) an electric double layer capacitor a plurality of positive electrodes and negative electrodes are alternately stacked with the separator between them, and the positive electrode and negative electrode wound with the separator between them (claims 3, 10-11); and the electrode sheet is bonded with an adhesive layer to each side of the metal current collector (claims 6, 8).

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5,260,855 – discloses multiple capacitors stacked in a container.

5,142,451 – discloses an electric double layer capacitor having two polarized electrodes.

JP – 3 – 116707 – discloses multiple protrusions formed on polarized electrodes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric W Thomas whose telephone number is 571-272-

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1985. The examiner can normally be reached on M,Tu,Sat 9 am - 9:30 pm; W, Th, F 6 pm -10:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Handwritten signature and date 6/1/04